What is claimed is:

1. An optical measurement apparatus for use in examination of a living body test subject comprising:

at least one light irradiating section for beaming light onto the body of the living body test subject;

at least one light detecting section for detecting light transmitting through the body or reflected from the interior of the body;

a carbon dioxide gas concentration control device for creating a first state in the body simulating a task period and a second state in the body corresponding to a rest period by controlling the carbon dioxide gas concentration applied within the air breathed by the test subject via the carbon dioxide gas concentration control device;

and a computer for controlling the light irradiating section and the light detecting section, and for setting a light detection sensitivity level, and for analyzing light signals detected by the light detecting section.

2. An optical measurement apparatus according to claim 1, wherein said computer further comprises:

a display section for displaying variations in said carbon dioxide gas concentration over time, and variations in said detected light signal intensity over time.

3. An optical measurement apparatus according to claim 1, wherein said computer further comprises:

a display section for displaying variations in a correlation between said gas concentration and said light signal intensity over time.

4. An optical measurement apparatus according to claim 1, wherein said computer contains an integrating function unit for finding a sensitivity distribution based on measurement values obtained by changing test subject carbon dioxide gas concentrations, and integrating measurement signals of the test subjects with said sensitivity distribution.

5. A method for examining a live subject for blood flow related problems comprising:

positioning the live subject to be in a rest state wherein no physical exertion is performed by the live subject;

applying electromagnetic radiation to the live subject from a radiation application device;

controlling the concentration of carbon dioxide gas breathed by the live subject to produce a blood flow state in the live subject similar to the natural blood flow state

corresponding to a physical exercise state of the live subject;

recording a blood flow rate in different sections of the live subject by detecting the electromagnetic radiation after it is applied to the live subject; and

determining via processor areas within the live subject wherein the blood flow rate is lower in the live subject than in other areas of the live subject.

6. The method of claim 5 wherein:

the electromagnetic radiation is laser light.

7. The method of claim 6 further comprising:

determining a sensitivity distribution from an intensity distribution of the laser light signals in sections of said living body and also from data on the inhaled gas concentration obtained by taking repeated measurements under multiple conditions for carbon dioxide gas concentrations which were programmed into the processor.

8. The method of claim 5 further comprising:

displaying areas within the live subject wherein the blood flow rate is lower in the live subject than in other areas of the live subject via a display.

9. The method of claim 8 wherein:

the display is a color grid display and

wherein the areas within the live subject wherein the blood flow rate is lower in the live subject than in other areas of the live subject are displayed as a different color in a grid from the other areas.

10. The method of claim 5 wherein the controlling the concentration of carbon dioxide gas breathed by the live subject to produce a blood flow state in the live subject similar to the natural blood flow state corresponding to a physical exercise state of the live subject is performed by pulse controlling application of the carbon dioxide gas.